MEDICAL TEACHER, 2017
VOL. 39, NO. 2, 174–180
http://dx.doi.org/10.1080/0142159X.2016.1246711

MEDICAL TEACHER
Taylor & Francis
Taylor & Francis Group

Community-based education: The influence of role modeling on career choice and practice location

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ABSTRACT

Introduction: Research findings in medical education support the importance of positive role models in enhancing learning and influencing the career path of medical students and graduates. The authors explored the characteristics of positive and negative role models during Community-Based Education and Service (COBES), as well as their effect on trainees' career paths.

Method: A cross-sectional survey was conducted by means of a questionnaire among medical students to explore the characteristics of positive and negative role models during COBES. Associations between gender, choice of specialty, and practice location were assessed using the chi-square test. All qualitative data analysis was performed using the principles of primary, secondary, and tertiary coding.

Result: The majority of the students indicated that role modeling during COBES will affect their choice of specialty and practice location with a significant gender difference in terms of practice location ($p < 0.005$). Qualitative data supported the finding that positive role modeling during COBES may influence graduates willingness to work in rural area.

Conclusion: The desire and willingness to work in a rural community combined with good communication and excellent interpersonal skills as well as good leadership skills are attributes of good role modeling that could influence medical students' career choice during COBES.

Introduction

Community-Based Education and Service (COBES) entails "learning activities that use the community as a learning environment, in which not only students but also teachers, members of the community, and representatives of other sectors are actively engaged throughout the students' educational experience" (World Health Organization 1987). COBES exposes students early and throughout their education to the public health and primary health care needs of rural communities.

COBES aims to create awareness among students of the importance of developing community partnerships as a means to implementing sustainable health care initiatives (Mbalinda et al. 2011). Using the community as a learning environment is compatible with existing learning theories. In this regard, COBES can be considered as situated or contextual learning. Contextual or situated learning refers to situations in which learning and thinking are influenced by the physical and social contexts in which people are immersed. Learning should thus not be simply viewed as the transmission of abstract and decontextualized knowledge from one individual to another, but as a social process whereby knowledge is co-constructed. Learning is situated in a specific context and embedded within a particular social and physical environment and professionals learn from participating in, and gradually being absorbed into, communities of practice (Lave & Wenger 1991). A learning environment exists wherever and whenever students gather and embraces numerous factors that contribute to effective teaching and learning (Maudsley 2001), such as the use of structured experiences, and being supportive and understanding of students needs and aspirations.

Research findings in medical education support the importance of positive role models in enhancing learning

Practice points

1. Community-Based Education and Service (COBES) exposes students early and throughout their education to the public health and primary health care needs of rural communities.
2. The use of COBES to influence choice of specialty and practice location in sub-Sahara Africa has so far received limited attention.
3. Positive role modeling in the rural community during COBES may influence students' choice of specialty and practice location.
4. Good role modeling attributes obtained from this study include: working and staying in the rural community, challenging and inspiring trainees during the COBES rotation.
5. Addressing mal-distribution of doctors through COBES program in the sub-Sahara region seems promising.

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and influencing the career paths of medical students and graduates (Elzubeir & Rizk 2001). Medical education as a form of adult socialization is generally characterized by the strong desire of students to acquire the knowledge and skills of the professional role model. To be most effective, learning must be undertaken in an environment that emphasizes a spirit of enquiry, is supportive and understanding of students' needs and aspirations and is characterized by civility and sensitivity to cultural, ethnic, and gender issues as they relate to students, teachers, and colleagues (Shuval & Adler 1980).

Role modeling is deeply rooted in social cognitive theory of learning, where learning is enhanced when students can observe and emulate the thinking and actions of expert role models (Elzubeir & Rizk 2001). Role modeling theory proposes that individuals perceive their identity in relation to those with whom they associate, those who have related roles and are affected by the individual's identity and performance (Green 1988). Studies indicate that role modeling may be positive or negative. When house officers recall their experiences with negative role modeling, they are most likely to regret their choice of medicine as a career based on these experiences (Paice et al. 2002). However, research findings also indicate that positive role models can have a strong influence on specialty choices of students and are important in shaping and reshaping learners' view of their future careers (Taylor et al. 2009).

During COBES, the students use the community as a learning environment and as they interact with members and health experts in the community, this provides them with real opportunities for role modeling and socialization. When students experience early and sustained exposure to rural communities and to rural physician role models, their perception to practice in rural areas may be influenced (Curran & Rourke 2004). The exposure also provides the students the opportunity to understand health and illness in the rural context. In addition, repeated interaction and collaboration with members of the community creates emotional situations that tend to awaken the civic responsibility of the students toward these rural communities. Furthermore, medical education research indicates the power of a "hidden curriculum," learning that occurs by means of informal interactions among students, faculty, and others, in shaping students' values and behavior (Gaufberg et al. 2010). Role modeling of students is more informal and unplanned when students learn from direct observation of skilled doctors (Taylor et al. 2009; Curry et al. 2011).

Systematic search of electronic databases indicates that substantial research has been done on role modeling in medical education in general (Passi et al. 2013). However, far fewer studies have focused on the influence of role models in COBES especially in developing countries. As students observe the behaviors of the health workers and other civil servants during COBES, they are likely to form their own opinions and reshape their attitudes, and these observations may consequently influence the students in their future career choices. This study therefore explores the characteristics of positive and negative role models in COBES, as well as their effect on trainees' career choices, and their willingness to work in the rural community after completion of their medical education.

Method

Settings

Ghana, which is located on the West Africa Coast, is a developing country in sub-Saharan Africa with approximately 25 million inhabitants.

The University for Development Studies School of Medicine and Health Sciences (UDS-SMHS), established in 1996, is one of the four campuses of UDS and is located in Tamale. Tamale is the capital city of the Northern Region, one of the 10 regions of Ghana.

In 2007, the UDS-SMHS changed its traditional medical training curriculum to a Problem-Based Learning and Community-Based Education and Service (PBL/COBES) methodology in response to its original mandate of using a problem-based, student-oriented, interdisciplinary, and community-oriented methodology as an approach to teaching medical students.

In the COBES component of the PBL/COBES curriculum of UDS-SMHS, students are exposed to the community from year 1 of their medical program. After a first year of participating in the University-wide interfaculty community-based program known as Third Trimester Field Practical Program (TTFPP), the COBES program for medical students starts in year 2 and continues up to year 4. Students from year 2 to 4 are sent to communities with at least a primary health care facility. In each of these 3 years, from July to August, the students spend 4 weeks in the community in groups of 8–10 per community. The COBES curriculum is iterative and each year builds upon the previous years' experience thereby updating, improving, and expanding the activities of the previous year. The curriculum is spiral in nature, that is there is a revisit of topics throughout the course but at different levels of difficulty (Dent & Harden 2013) Depending on the year of the program, students are expected to identify and explain factors (e.g. demographic, economic, social, cultural, political, and environmental) that affect the community's health (first COBES year), perform a study resulting in a community health diagnosis to identify community health needs, and subsequently prioritize them (second COBES year) and identify the resources available in the community to contribute to solving those needs (third COBES year). At the community level, the students design and implement a health intervention program based on the community health diagnosis. They rotate through the various sections of the health facility in the community, for example the dispensary, consulting rooms, Maternal and Child Health clinic, and the laboratory as well as participate in the scheduled immunizations visits by health workers to the communities.

An assigned district supervisor and a faculty member visit the students in their various communities, interact with leaders of the health facility, the chiefs, and opinion leaders of the communities and evaluate the activities of the students.

Participants and questionnaire

A cross-sectional survey was conducted among third- and fourth-year medical students who followed the PBL/COBES curriculum. In 2014, a questionnaire was administered to a convenient and purposeful sample of 149 students (60

students in year 3 and 89 students in year 4) who were present during their respective lecture sessions. The survey consisted of questions that explored the demographic characteristics of the students, such as gender and age, as well as eight opened-ended questions. The latter assessed the characteristics of positive and negative role models during COBES, the effect of role models on their choice of specialty and their willingness to work in a rural area. The questionnaire was developed by the first author (A.A.) and construct-validated by the third and fourth authors (A.S. and W.v.M.) who reformulated some of the questions for clarity. The questionnaire was then pretested on five students from each class who made minor changes. These students were excluded from the study.

The purpose of the study was clearly explained to all participants and informed consent was obtained before participation. Participation in the study was voluntary and confidentiality and anonymity were ensured.

Formal permission to carry out the study was given by the Dean of the School of Medicine and Health Sciences and ethical approval for this study was obtained from the Ethics Committee of the School of Medicine and Health Sciences of the University for Development Studies.

Data analysis

The quantitative data were entered into Microsoft Excel and analyzed using GraphPad Prism, Version 5.01 (GraphPad Software Inc., San Diego, CA). Results were presented as frequencies and proportions of the total sample recruited. Associations between gender, choice of specialty, and practice location were assessed using the chi-square test.

Analysis of open-ended questions was performed using Atlas TI version 6.0.15 GmbH-Berlin, in phases according to the generally accepted coding principles of open coding, axial coding, and selective coding (Cohen et al. 2007) based on principles derived from grounded theory (Watling & Lingard 2012). Initial coding was done by author (A.A.), thereafter the first, third, and fourth authors (A.A., A.S., and W.v.M.) checked the coding, and any discrepancies in the process were discussed until consensus was reached. Illustrative quotes from the open-ended questions are presented to underscore the findings when and where applicable.

Results

This section describes the numerical results of the questionnaire and the results of the qualitative analysis of the open-ended questions.

The quantitative results

From the 139 questionnaires administered, 134 were returned (96.4% response rate). The majority of participants (59.7%) were male. A majority of the students indicated that role modeling during COBES will affect their choice of specialty and choice of practice location with no significant gender difference in terms of choice of specialty ($p < 0.09$), but a significant gender difference in terms of practice location ($p < 0.005$). However, a significant proportion of males indicated that role modeling would not affect their choice of specialty ($p < 0.001$) (Table 1).

Table 1. Study variables of students stratified by gender.[Q]

Variable	Total ($n = 134$)	Male ($n = 80$)	Female ($n = 54$)	p Value
Choice of specialty				
Will affect	69 (51.5%)	40 (50.0%)	29 (53.7%)	0.0900
Will not affect	21 (15.7%)	16 (20.0%)	5 (9.3%)	0.0017*
Not sure yet	7 (5.2%)	4 (5.0%)	3 (5.5%)	1.0000
No response	37 (27.6%)	20 (25.0%)	17 (31.5%)	0.6423
Choice of practice location				
Will affect	81 (60.4%)	50 (62.5%)	31 (57.4%)	0.0045*
Will not affect	14 (10.4%)	8 (10.0%)	6 (11.1%)	0.7064
Not sure yet	9 (6.7%)	6 (7.5%)	3 (5.6%)	0.3469
No response	30 (22.4%)	16 (20.0%)	14 (25.9%)	0.7965

The open-ended questions

A number of themes related to role modeling were identified. Most of the students considered good moral and social standing, professional background regarding specialty (that is, for example, being either a pediatrician or a neurosurgeon) and having good reputation among patients as attributes they value in an individual who could serve as a role model. An attribute, by definition, is a commonly central quality or feature of something or someone especially one that is a core part of its nature, a character trait. Quality, however, is a characteristic or feature of someone or something (Cambridge int. Dictionary of English). Students identified the following themes during COBES as qualities they value in a role model.

Personal attributes

Students, in particular, mentioned certain personal attributes of role models that they valued to have an impact on their career paths. These personal skills mainly related to attributes, which the students frequently observed in the community members during their interaction with health workers, community leaders as well as faculty members. The attributes included being: hardworking, God-fearing, disciplined, humble, respectful, and dedicated to the profession, and also being open-minded, honest, responsible, approachable, compassionate, and inspiring.

Hard working role models who stay in the communities and want to improve health delivery without complaining to trainees about how difficult staying in the community is. (Male student, 24 years)

A person who is dedicated to his/her work, respects everyone and is disciplined. (Male student, 22 years)

Easy to approach, dedicated service to everyone, with a good humble heart. (Male student, 25 years)

Teaching attributes

Students identified attributes relating to willingness to teach, having a good understanding of students' learning difficulties, and dedication to teaching, as behaviors students see in excellent role models.

Two sub-themes were identified in the theme "teaching attributes":

a. Responsibility/duty (duty or role as a teacher): Willingness to teach, a good and dedicated teacher.

Someone who is hardworking, humble, but firm. A person who is ready to teach, as well as, listen to an expressed opinion. A person who inspires confidence in others. (Male student, 23 years)

b. Supportive (encouraging whilst teaching students): proper understanding of students' learning difficulties.
Such a person should be able to educate me, advise me and challenge me to do better. Should be able to encourage me to improve in my weak areas (Female student, 26 years)

Professionalism

The students valued role models, who interacted professionally with patients and students alike, showed compassion for the sick and helped build a professional identity in the medical vocation.

A person who is diligent to duty and service with the aim of helping others and bringing smiles to faces. Someone who puts the life of others as a priority. Someone whose actions show that he's working for the good of this generation and other generations to come; not someone who wants to gain all good things to himself at the expense of others. (Female student, 23 years)

A young or elderly man or woman in the profession with many years of experience who has made an impact in society both through his/her profession and outside of it. (Male student, 25 years)

Professionalism, dedication, passion, hardwork, compassion, modesty, gentle, calm. A person who loves to share his knowledge and experience. (Male student, 22 years)

Role models in the rural community

As to who could serve as a role model during COBES in the rural community, students identified mostly the health workers, leaders such as assembly members, chiefs, youth leaders, some ordinary community members, and faculty members from the University. The students identified the following characteristics as attributes of positive role models in the rural community: good communication and interpersonal skills, good leadership skills, putting the community's needs first, being sociable and friendly and being a team player, as well as having the desire and willingness to work in the rural community.

From the above description of attributes required in the rural role models, the following sub-themes were identified:

a. *Social skills*: good communication and interpersonal skills, being sociable and friendly and a team player
A person who can relate well with the community members and motivates them to achieve their goals in life (Male student, 22 years)
One with good management skills, communication and interpersonal skills (Female student, 23 years)

b. *Leadership skills*
A person who is intelligent and has foresight as to what he/she wants to achieve for the community. A dedicated individual (Female student, 22 years)

c. *Empathy/compassion*: the desire and willingness to work in the rural community, putting the community's needs first.
Someone who has the welfare of his/her community at heart and dedicates him/herself to making sure that there is development in the community. Someone who is willing to take care of the needs of the vulnerable persons in the community. (Male student, 20 years)

d. *Most often the people we see in the communities are community health nurses. I think if more doctors lived in such communities they would help others also make similar decisions. (Female student, 23 years)*

Choice of specialty

As attributes that are likely to influence their choice of specialty during COBES, the students mentioned the following: hardworking personality, encouraging and inspiring trainees, being willing to help the community and also being a specialist who actually stays and works in the community.

If the person is a specialist in his field of study and still has chosen to be in the community, I think students will be humble enough to emulate his/her example no matter their level in the field of medicine. (Female student, 23 years)

It can really encourage the trainees because if with little resources the community health workers can do so much to help sustain the health of the community, then with further training the students would want to specialise in a relevant field to help alleviate the burden suffering at the community level. (Male student, 23 years)

Choice of practice location

While in the community doing their 4-week COBES rotation, students identified the following attributes that could influence their choices of place of work: encouraging the trainee, demonstrating a favorable attitude toward work in the rural community, displaying a positive attitude for the community, exemplary behavior, exhibiting profound willingness to work in the rural community, making working and staying in a community attractive to the trainee by his/her mannerism, demonstrating commitment for the job despite challenges, and challenging and inspiring trainees.

A pleasant attitude put up by a role model towards the trainees would make them develop a favourable attitude to working in the rural community. (Male student, 20 years)

If role models have a positive attitude toward work in the rural area it could encourage trainees to also work in rural areas. (Female student, 22 years)

Dedication to work in spite of non-availability of certain facilities/amenities and the ability to improve the lives of community members by a role model can help others adopt to the situation and learn to work in rural communities. (Female student, 22 years)

Barriers to role modeling

The students identified the following attributes as negative elements in a role model, which may consequently adversely impact on their career choices. They included: laziness, arrogance, lateness to work, selfish/self-centered, irresponsible, bad interpersonal relationship, untrustworthy, not courteous, and dishonest.

Lack of morale values that conform to that of the society, A person who is not truthful, not frank. (Male student, 21 years)

Arrogant, proud and insensitive when dealing with people around you; selfish and unloving. A serious looking personality but who is very disappointing in his motivation of others. (Female student, 23 years)

Greedy, self-centred; apathetic to patients, and unwilling to share knowledge; undisciplined. (Male student, 22 years)

Discussion

This study identified a number of qualities students value in persons they observe and perceive as role models during COBES. The most commonly mentioned attributes included being disciplined dedicated, honest, approachable, and inspiring. These qualities can be grouped under three main themes: personal, teaching, and professional attributes. These findings are supported by previous research about role models in medical education which had identified personal qualities, teaching skills and clinical competence as the critical variables in the choice of role models by medical students (Passi et al. 2013). A role model in the medical field helps prepare medical students in their professional career by his/her exemplary teaching and mentoring; this helps shape the students' professional identity, creates awareness of their future professional responsibility and their entry into the workplace as doctors (Passi et al. 2013). Regarding role modeling, our findings add a sub-Saharan perspective to the literature of attributes good role models in medical education should have. So far research on the influence of role models, especially during COBES in the rural settings, has been limited in our sub-region.

This study also revealed that role modeling in the rural community during COBES may have an effect on career choices of medical students. The majority of the students indicated that role modeling during COBES could influence their choice of specialty and practice location, 51.5% and 60.4%, respectively. This has been similarly reported in other studies in the developed countries (Curry et al. 2011). It is indeed known from the medical education literature that role models have a strong influence on the career choices of medical students (Taylor et al. 2009).

It further became evident that teaching staff play an important role in mentoring and modeling students in their professional career. The use of teaching staff as role models for professional behavior has long been an informal and unplanned part of medical training when students learn from direct observation of skilled doctors (Paice et al. 2002; Taylor et al. 2009; Gaufberg et al. 2010; Curry et al. 2011). Since this study clearly revealed the pivotal role of faculty members in modeling students in their professional career, this role should perhaps be more explicitly acknowledged in the medical education curriculum.

Apart from the personal and teaching attributes mentioned above, the students also identified several additional qualities in persons they considered as positive role models in the community. A willingness to help the community, a positive attitude to work in the rural area, compassion for the sick exhibited by health workers, the commitment of some community members, opinion leaders, and chiefs to serve their communities no matter what, were some more additional qualities the students observed and these could serve as motivators to consider in their career choices. Students admired and learned a lot from these health workers who were mostly community health nurses and midwives. The students interacted with community members and health experts, who provided real opportunities for role modeling and socialization. The willingness to help the community, a positive attitude to work in the rural area and compassion for the sick exhibited by the health workers created emotional situations that tended to awaken the civic responsibility of the students toward these rural communities. These constructive attributes assisted the students to form their own opinions and consequently change their unfounded fears of rural areas and, hopefully, they may influence the students in their future career choices. When medical students observe and are mentored by doctors working as primary health care physicians in the rural communities, this may have an influence on their choice of specialty and practice location through the role modeling they either passively or actively received (Wright & Carrese 2002). Since these primary health care physicians work as generalists, who provided counseling and support in many diverse ways for the students, they would serve as excellent role models for medical students in the communities. Wright and Carrese (2002) found that generalists were indeed more likely than subspecialists to be named as excellent role models.

Students also alluded to the fact that personal attributes such as displaying bad interpersonal relations, unapproachability, self-centeredness, arrogance, and laziness constituted negative role modeling attributes. These, the students observed could serve as a barrier to positive role modeling of medical students during COBES training in the rural communities.

Limitations of the study

The survey was conducted in a single Ghanaian medical school, making it difficult to generalize our findings. But the results obtained are interesting, unique and could serve as a reference point for similar studies to be carried out in analogous Ghanaian institutions or in the sub-region or even in other low- and middle-income countries.

Conclusions

The desire and willingness to work in a rural community combined with good communication and excellent interpersonal and leadership skills are attributes of good role models for medical students during a COBES rotation that subsequently would influences medical students' career choices and readiness to work in a rural setting. Replication of the COBES program in other medical schools in the sub-Saharan region is, therefore, strongly advocated since it has many positive aspects as enumerated above. We also advocate that similar research work should be performed in other parts of the world, with similar conditions, to confirm the generalizability of the preliminary findings of this study.

Acknowledgements

The authors wish to express their sincere gratitude to the third and fourth year medical students of the School of Medicine and Health Sciences of the University for Development Studies for their support in answering and returning the questionnaires

Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

Glossary

Community-Based Education and Service (COBES): An instructional format where trainees learn professional competencies in a rural community setting focusing on population groups and also individuals and their everyday problems as well as providing service that meets identified community needs. Instructions generally take place at a community health center, Community-based Health Planning and Services (CHPS) Compound or a rural hospital. During their training in the community, students learn about social and economic aspects of illness, about health services in the community and methods of health promotion, about working in teams, and about frequency and types of problems encountered outside a hospital setting. The trainees engage in service provision such as giving heath educational talks at the community schools, sorting and filling out-patients cards, dispensing medicine at the pharmacy, going for outreach activities for immunization. Through these activities in the community trainees not only learn but also provide service to the community, thus addressing some manpower gaps of the community.
Wojtczak A. 2003. Glossary of medical education terms. AMEE Occasional Paper No. 3. Dundee: AMEE.
Bringle RG, Hatcher JA. 1996. Implementing service learning in higher education. J High Educ. 67:221–239.

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References

Cohen JJ, Cruess S, Davidson C. 2007. Alliance between society and medicine: the public's stake in medical professionalism. JAMA. 298:670–673.
Curran V, Rourke J. 2004. The role of medical education in the recruitment and retention of rural physicians. Med Teach. 26:265–272.
Curry SE, Cortland CI, Graham MJ. 2011. Role-modelling in the operating room: medical student observations of exemplary behaviour. Med Educ. 45:946–957.
Dent J, Harden RM. 2013. A practical guide for medical teachers. London: Elsevier Health Sciences.
Elzubeir MA, Rizk DE. 2001. Identifying characteristics that students, interns and residents look for in their role models. Med Educ. 35:272–277.
Gaufberg EH, Batalden M, Sands R, Bell SK. 2010. The hidden curriculum: what can we learn from third-year medical student narrative reflections? Acad Med. 85:1709–1716.
Green GJ. 1988. Relationships between role models and role perceptions of new graduate nurses. Nurs Res. 37:245–248.
Lave J, Wenger E. 1991. Situated learning: legitimate peripheral participation. Cambridge, England; New York: Cambridge University Press.
Maudsley RF. 2001. Role models and the learning environment: essential elements in effective medical education. Acad Med. 76:432–434.
Mbalinda SN, Plover CM, Burnham G, Kaye D, Mwanika A, Oria H, Okullo I, Muhwezi W, Groves S. 2011. Assessing community perspectives of the community based education and service model at Makerere University, Uganda: a qualitative evaluation. BMC Int Health Hum Rights. 11:S6.
Paice E, Heard S, Moss F. 2002. How important are role models in making good doctors? BMJ 325:707–710.
Passi V, Johnson S, Peile E, Wright S, Hafferty F, Johnson N. 2013. Doctor role modelling in medical education: BEME Guide No. 27. Med Teach. 35:e1422–e1436.
Shuval JT, Adler I. 1980. The role of models in professional socialization. Soc Sci Med. 14A:5–14.
Taylor CA, Taylor JC, Stoller JK. 2009. The influence of mentorship and role modeling on developing physician–leaders: views of aspiring and established physician–leaders. J Gen Intern Med. 24:1130–1134.
Watling CJ, Lingard L. 2012. Grounded theory in medical education research: AMEE Guide No. 70. Med Teach. 34:850–861.
World Health Organization. 1987. Technical report series no. 746. Community-based education of health personnel. Report of a WHO study group. Geneva: World Health Organization.
Wright SM, Carrese JA. 2002. Excellence in role modelling: insight and perspectives from the pros. CMAJ. 167:638–643.

Appendix 1. Interview guide

UNIVERSITY FOR DEVELOPMENT STUDIES

SCHOOL OF MEDICINE AND HEALTH SCIENVES, TAMALE

My name is Anthony Amalba of the School of Medicine and Health Sciences of the University for Development Studies, Tamale. I am conducting a research on the Influence of PBL with COBES as an integral part of the undergraduate curriculum on specialty and rural workplace choices. This research is only for academic purposes for the award of PhD. I hereby crave your indulgence to support me in this research by filling the attached questionnaire.

Please, by accepting to complete this questionnaire, it suggests you have consented to participate in the research. Your participation in this study is voluntary and your responses will be accorded the needed confidentiality and anonymity.

Please you are kindly requested to answer all the questions and do so with all sincerity and honesty.

Thank you very much.

Interview Guide

1. Age:————————————-
2. Sex: 1. Male2. Female
3. Who do you consider as a role model in the course of your professional training?

4. What qualities do you look for in a role model?
5. What characteristics do you think constitute an excellent role model?
6. What characteristics/attributes do you think constitute poor role model?
7. Who could serve as a role model during COBES in the rural community?
8. What characteristic/attributes do you look for in the one you consider as a role model in the rural community?
9. In your opinion, how could role models in the rural community during COBES have an influence on trainee's choice of specialty?
10. In your opinion, how could role models in the rural community during COBES have an influence on trainee's choice of place of work?